

University of Groningen

Sorting and trafficking of proteins in oligodendrocytes during myelin membrane biogenesis

Klunder, Lammert

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version

Publisher's PDF, also known as Version of record

Publication date:

2007

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Klunder, L. (2007). *Sorting and trafficking of proteins in oligodendrocytes during myelin membrane biogenesis*. s.n.

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

**Sorting and trafficking of proteins in
oligodendrocytes during myelin membrane
biogenesis**

The study described in this thesis was performed at the:
Department of Cell Biology,
section Membrane Cell Biology,
University Medical Centre Groningen,
Antonius Deusinglaan 1,
9713 AV Groningen,
The Netherlands

The research presented in this thesis was supported by grants from the:
Dutch MS Research Foundation 'Stichting MS Research'
The foundation 'Jan Kornelis Cock'

This thesis has been realized with the financial support of:
School of Behavioral and Cognitive Neurosciences (BCN)
University of Groningen

This thesis was printed by:
PrintPartners Ipskamp, Enschede, the Netherlands

Cover:
Localization of PLP in myelinating oligodendrocytes (in vitro)

ISBN: 978-90-367-3270-3
Copyright 2007 Bert Klunder

RIJKSUNIVERSITEIT GRONINGEN



**Sorting and trafficking of proteins in
oligodendrocytes during myelin membrane
biogenesis**

Proefschrift

ter verkrijging van het doctoraat in de
Medische Wetenschappen
aan de Rijksuniversiteit Groningen
op gezag van de
Rector Magnificus, dr. F. Zwarts,
in het openbaar te verdedigen op
woensdag 12 december 2007
om 13.15 uur

door

Lammert Klunder

geboren op 21 juni 1961
te Veendam

Promotor: Prof. dr. D. Hoekstra

Copromoter: Dr. W. Baron
Dr. H. de Vries

Beoordelingscommissie:

Prof. dr. M. Ameloot

Prof. dr. J.H.A. de Keyser

Prof. dr. F.G.M. Kroese

Paranimfen:

Harrie Klunder

Jenny Dallinga-de Jonge

Voor mijn vader en moeder

Contents

List of abbreviations

<i>Chapter 1</i>	General Introduction and Scope of Thesis	9
<i>Chapter 2</i>	Sorting signals and regulation of cognate basolateral trafficking in myelin biogenesis	33
<i>Chapter 3</i>	Distinct roles of syntaxin 3 and 4 in the biogenesis of myelin membranes in oligodendrocytes	53
<i>Chapter 4</i>	Involvement of PLP-sulfatide microdomains and transcytosis in myelin sheet assembly	77
<i>Chapter 5</i>	The MAL proteolipid regulates transcytotic transport of PLP in oligodendrocytes by impeding traffic through an intracellular compartment	99
<i>Chapter 6</i>	Summary and perspectives	121
<i>Chapter 7</i>	Nederlandse samenvatting	125
	References	131
	List of publications	155
	Dankwoord	157